

**Remarks/Arguments:**

Claim 1 has been amended. No new matter is introduced herein. Claims 1-3 and 28 are pending.

Claim 1 has been amended to clarify that the polarization ellipse has a major axis that is different from a minor axis. No new matter is introduced herein. Support for the amendment to claim 1 can be found, for example, at paragraphs [0039] and [0045] of the subject specification.

Claim 1 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's Admitted Prior Art (specifically paragraphs [0012-0014] of the subject specification, referred to herein as AAPA) in view of Dulaney et al. (U.S. 6,469,275). Claim 2 was rejected under 35 U.S.C. § 103(a) as being unpatentable over AAPA in view of Dulaney et al. and further in view of Rosencwaig et al. (U.S. 5,412,473). Claim 3 was rejected under 35 U.S.C. § 103(a) as being unpatentable over AAPA in view of Dulaney et al. and further in view of Cordingley et al. (U.S. 6,381,259). Claim 28 was rejected under 35 U.S.C. § 103(a) as being unpatentable over AAPA in view of Dulaney et al. and further in view of Nagata et al. (JP 404253588A). It is respectfully submitted that these grounds for rejection are overcome for the reasons set forth below.

In particular, neither AAPA, Dulaney et al. nor their combination disclose or suggest:

...b) focusing the pulse of laser light to the beam spot within a target area of the microstructure workpiece such that the pulse of laser light has a substantially circularly symmetric beam intensity profile at the beam spot...

...c) adjusting a polarization of the pulse of laser light such that in the beam spot the pulse of laser light is elliptically polarized and an axis of a polarization ellipse of the pulse of laser light is oriented in the predetermined direction, the polarization ellipse having a major axis different from a minor axis, while maintaining the substantially circularly symmetric beam intensity profile of the pulse of laser light at the beam spot...

...d) adjusting an ellipticity of the polarization of the pulse of laser light such that the pulse of laser light has contours of constant machining capacity on the surface of the microstructure workpiece, ... while maintaining the substantially circularly symmetric beam intensity profile of the pulse of laser light at the beam spot...

as required by claim 1 (emphasis added). The present invention, as recited in claim 1, controls both the polarization properties and the fluence of pulses of laser light so that

each pulse of laser light machines an area of the workpiece surface that substantially matches a predetermined shape, without varying the intensity profile of the beam spot.

AAPA (paragraphs [0012-0014]) teaches that laser machining may produce a variable width size, by setting a beam spot and fluence of the micromachining laser. AAPA, however, does not disclose or suggest controlling a shape of an area machined by a laser by adjusting an elliptical polarization of a pulse of laser light, while maintaining a substantially circularly symmetric beam intensity profile of the pulse of laser light at the beam spot, as required by claim 1. These features are neither disclosed nor suggested by AAPA. Accordingly, AAPA does not disclose or suggest all of the features of claim 1.

Dulaney et al. disclose, in Figs. 1A-2B, that a laser beam 10 may impact a workpiece 14 at various angles, which changes the dimensions of the impact spot in one or more directions (Col. 1, lines 35-45). In Figs. 4A-5, Dulaney et al. disclose shape changing means for correcting an incident area due to the incident angle of a laser beam. The shape changing means includes lens 40 (Fig. 4A), transparent overlay layer 46' (Fig. 4C) and trapezoidal layer 48 (Fig. 5) (Col. 6, lines 4-51). At Col. 7 line 53-65, Dulaney et al. disclose use of a polarizing element that "may be separate or included within the actual shape changing means" to change the orientation and polarization of a laser beam. In particular, the polarizing element is used to apply an increased amount of energy through a transparent overlay material.

Dulaney et al., however, do not disclose or suggest: 1) that the polarizing element produces elliptical polarization or 2) that a shape of an area machined by a laser is controlled by adjusting an elliptical polarization of a pulse of laser light, while maintaining a substantially circularly symmetric beam intensity profile, as required by claim 1. Dulaney et al., instead teaches that the polarizing element adjusts an amount of energy applied through the transparent overlay material, as acknowledged at p. 2 of the Office Action. Applicant's claim 1, in contrast to Dulaney et al., controls both the polarization properties and the fluence of pulses of laser light so that each pulse of laser light machines an area of the workpiece surface that substantially matches a predetermined shape, without varying the intensity profile of the beam spot. Thus, Dulaney et al. do not make up for the deficiencies of the AAPA.

Because neither AAPA, Dulaney et al. nor their combination disclose or suggest all of the limitations of claim 1, claim 1 is not subject to rejection under 35 U.S.C. § 103(a) as being unpatentable over AAPA in view of Dulaney et al.

Claims 2, 3 and 28 include all of the features of claim 1 from which they depend and are patentable over AAPA and Dulaney et al. for at least the same reasons as claim 1. Rosencwaig et al., Cordingley et al., Nagata et al. do not make up for the deficiencies of AAPA and Dulaney et al. because they do not disclose or suggest controlling the shape of an area by adjusting the elliptical polarization of a pulse of laser light while maintaining a substantially circularly symmetric beam intensity profile, as required by claim 1. Accordingly, claims 2, 3 and 28, which depend from claim 1, are also patentable over AAPA, Dulaney et al. in combination with Rosencwaig et al., Cordingley et al., Nagata et al., respectively.

Appln. No.: 10/805,846  
Amendment Dated September 25, 2008  
Reply to Office Action of June 25, 2008

MATG-406US

In view of the amendment and remarks set forth above, applicant respectfully request that the examiner reconsider and withdraw the rejection of claims 1-3 and 28.

Respectfully submitted,



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Dated: September 25, 2008

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